Remarks

1. Introduction

Claims 1-78 are pending.

2. Double Patenting

Claims 1, 12, 21, 23, 53, and 72-74 of the present application were provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of copending Application No. 10/684,208, (hereinafter referred to as "the '208 application"). Claims 5, 16, 27, 48, and 56 of the present application were provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 5 of the '208 application. Claim 31 and 59 of the present application were provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 7 of the '208 application. Claim 32 of the present application was provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 7 of the '208 application. Claims 6-8, 17-19, 22, 33, 36, 39, 60, 62, and 64 of the present application were provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 8 of the '208 application. Claims 34 and 61 ('043) of the present application were provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 9 of the '208 application. Claim 35 ('043) of the present application was provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 10 of the '208 application. Claims 37-38, and 63 of the present application were provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 12 of the '208 application.

Applicants state that, upon receiving allowable subject matter, they will submit a terminal disclaimer.

3. Rejections based on 35 U.S.C. §§ 102, 103

Claims 1-4, 9-15, 20-21, 23-26, 28-32, 34-35, 37-38, 40-47, 49-55, 57-59, 61, 63, and 65-74 were rejected under 35 U.S.C. 102(e), as being anticipated by U.S. Patent Publication No. 2003/0179891 A1 (Rabinowitz et al). Claims 5, 6-8, 16, 17-19, 22, 27, 33, 36, 39, 48, 56, 60, 62, and 64 were rejected under 35 U.S.C. §103(a) as being unpatentable over the Rabinowitz reference.

The Office Action states that the Rabinowitz reference teaches determining the potential loudspeaker locations (citing Figure 4, elements 47-52) and teaches selecting at least one loudspeaker based on the statistical analysis (citing claim 1). See Claim 1 ("determining the potential loudspeaker locations" and "selecting at least one loudspeaker location based on the statistical analysis"); see also claim 12 ("instructions for determining potential loudspeaker locations in the audio system" and "instructions for statistically analyzing across at least one frequency of the predicted transfer functions for the plurality of listening positions"); claim 23 ("determining the potential loudspeaker locations" and "selecting at least one loudspeaker location based on the statistical analysis"); claim 53 ("instructions for modifying the transfer functions based on the potential loudspeaker locations in order to generate predicted transfer functions"); claim 72 ("logic for modifying the transfer functions based on the potential loudspeaker locations in order to generate predicted transfer functions").

Applicants respectfully disagree with the Office Action that the Rabinowitz reference teaches analyzing "potential" loudspeaker positions. The entire focus of the Rabinowitz reference relates to equalization of the audio system. In particular, the Rabinowitz reference teaches equalization calculation circuitry 18 that "furnishes an equalization pattern signal appropriate to achieve a desired frequency response, and stores the equalization pattern signals in memory 20." Paragraph [0022]. There is no teaching, or even any suggestion, to determine "potential" loudspeaker positions, and analyze predicted transfer functions in order to select one of the potential loudspeaker positions.

In the Rabinowitz reference, the loudspeaker positions are preselected and unchangeable. In fact, the Office Action's citation to elements 47-52 of Figure 4 as teaching determining potential loudspeaker positions is clearly misplaced. For reference, Figure 4 is reproduced below:

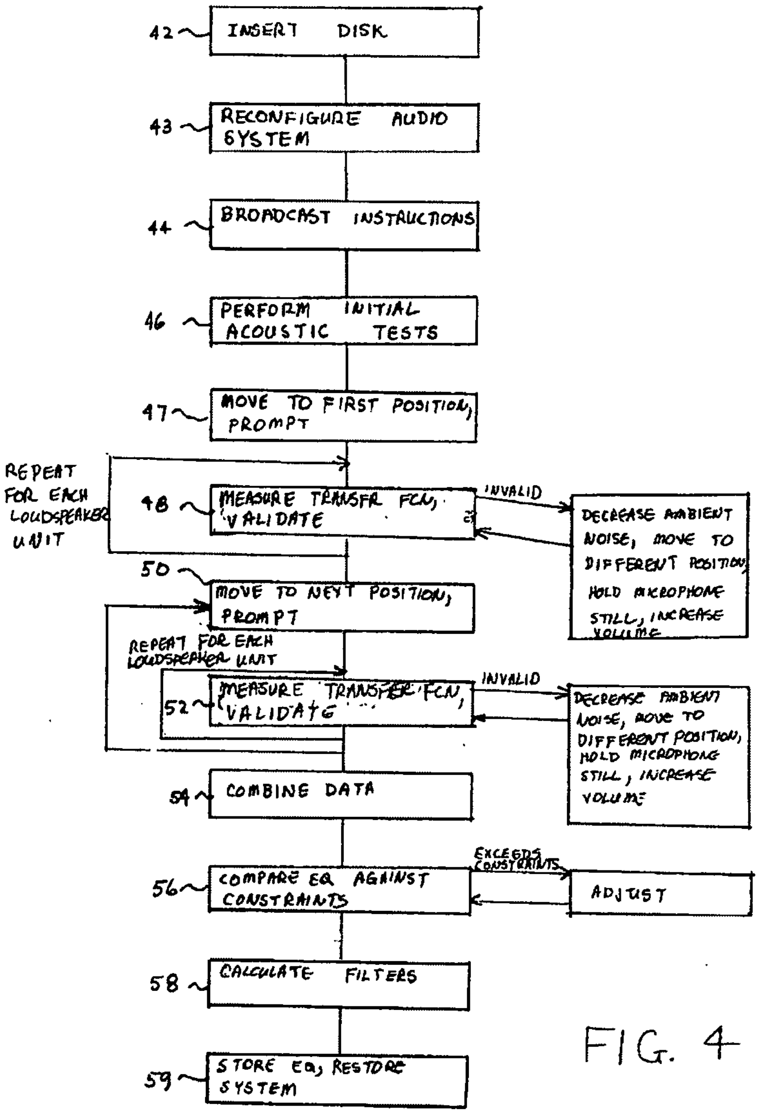
42
INSERT DISK
43
RECONFIGURE AUDIO SYSTEM
44
BROADCAST INSTRUCTIONS
46
PERFORM INITIAL ACOUSTIC TESTS
47
MOVE TO FIRST POSITION, PROMPT
REPEAT FOR EACH LOUDSPEAKER UNIT
48
MEASURE TRANSFR FCN, VALIDATE
INVALID
DECREASE AMBIENT NOISE, MOVE TO DIFFERENT POSITION, HOLD MICROPHONE STILL, INCREASE VOLUME
50
MOVE TO NEXT POSITION, PROMPT
REPEAT FOR EACH LOUDSPEAKER UNIT
52
MEASURE TRANSFER FCN, VALIDATE
INVALID
DECREASE AMBIENT NOISE, MOVE TO DIFFERENT POSITION, HOLD MICROPHONE STILL, INCREASE VOLUME
54
COMBINE DATA
56
COMPARE EQ AGAINST CONSTRAINTS
EXCEEDS CONSTRAINTS
ADJUST
58
CALCULATE FILTERS
59
STORE EQ, RESTORE SYSTEM

FIG. 4

As shown above, elements 47-52 recite a "position" (see element 47) or "move to next position" (see element 50). However, this discussion of the "position" is not for the any "potential" loudspeaker position. Rather, it is for the desired listening position. This is irrefutably supported by the text of the Rabinowitz reference, reproduced below:

> At step 47, the user may then be instructed to move to a **first desired listening location**, and issue a prompt that the user is ready to proceed. At step 48, the transfer function (that is, the frequency response) **at a first listening position** are measured by acoustic measuring circuitry 19, and the measurements may be checked for validity, such as being within an appropriate range of amplitude, that the ambient noise is below a predetermined limit, and that the readings are within a range of coherency, stability over time, and repeatability (indicating that microphone does not move too much during the measurement).

Paragraph [0030]. The Office Action's citation to claim 1 as teaching the selecting of the loudspeaker location based on the statistical analysis is likewise misplaced. Again, for ease of reference, claim 1 of the Rabinowitz reference is reproduced below:

> 1. An audio system, comprising:
> a source of audio signals;
> signal processing circuitry coupled to said source for processing said audio signals to produce processed audio signals;
> a plurality of loudspeaker units, coupled to said signal processing circuitry, constructed and arranged to be deployed about a room, for radiating sound waves responsive to said processed audio signals;
> a microphone unit, for receiving said sound waves and for transducing said sound waves to electrical signals;
> acoustic measuring circuitry, for receiving said electrical signals and providing frequency response signals;
> a memory, coupled to said acoustic measuring circuitry, for storing characteristic data signals of said loudspeaker units and further for storing said frequency response signals; and
> equalization calculation circuitry, coupled to said memory, for providing an equalization pattern signal responsive to said frequency response signals and said characteristic data signals of said plurality of loudspeaker units.

As evident from the above claim 1, there is no mention of selecting any loudspeaker positions. The word "position" is not even mentioned. Consistent with the entire focus of the Rabinowitz reference, claim 1 focuses on "equalization calculation circuitry" and on nothing else. As the Rabinowitz wholly fails to teach or even suggest analyzing any potential loudspeaker locations, claims 1, 12, 21, 23, 53, and 72 are patentable over the cited art.

In addition, the Rabinowitz reference discloses a significantly different system from that disclosed and claimed in the present application. As one example, the Rabinowitz reference teaches an analysis that focuses on a single input. Specifically, while the Rabinowitz reference discloses taking measurements for multiple listening positions, the Rabinowitz reference teaches that the measurements are simply averaged to generate a single input for the analysis. See paragraph [0031] ("At step 54, the data signals for all the positions may be combined by the acoustic measuring circuitry 19 (by some method such as energy averaging) and an equalization pattern developed from the data signals."). In this way, the Rabinowitz reference fails to teach, or even suggest, generating predicted transfer functions at each of the plurality of listening positions. And, because the Rabinowitz reference only focuses on an average of the seat positions, the Rabinowitz reference is unable to reduce the variance from one listening position to the next. By contrast, claims 75 and 77 recite predicting the transfer functions at each of the plurality of listening positions. See claims 75 and 77. The statistical analysis may thus analyze the variance of the predicted transfer functions in order to select a configuration of the audio system to reduce the variance in the plurality of listening positions. See claims 76 and 78. Thus, for at least the reasons stated, the claims as currently presented are patentable over the references of record.

4. Conclusion

The Examiner is invited to contact the undersigned attorneys for the Applicant via telephone if such communication would expedite this application.

Respectfully submitted,

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